DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-003162
Date Inspected: 30-Jun-2008

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 630
OSM Departure Time: 1530
Location: Shanghai, China

CWI Name: Zhao Chen Sun and Lvliqing

Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

CWI Present: ☑ Yes ☐ No

Bridge No: 34-0006
Component: OBG and SAS Tower Fabrication

Summary of Items Observed:

On this date, Caltrans Office of Structural Material (OSM) Quality Assurance (QA) Inspector Joselito Lizardo was present as requested to perform observations on the fabrication of Orthotropic Box Girder (OBG) and SAS Tower at Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China.

The QA Inspector has randomly observed the following activities on sub-assembly Bays mentioned below;

Bay 2: 114M Tower Mock-ups, Plate Cutting, Rolling
This QA Inspector observed square edge machining of 10-60mm thick x 400mm wide x 1010mm long plates marked P235(5pcs), P122(2pcs), P236(1pc), P329(1pc) and P220(1pc), which appear to be stiffener were seen complete. Two plates marked P242 and P424 having dimension as previously mentioned being set up at the machining table for beveling. Rolling machine and tower mock up 114M were both noted idle.

Bay 3: OBG side/bottom/edge panel
The QA Inspector randomly observed three ZPMC welder operators Lin Zhi Hong ID #062447 and Sun Ti Yu ID #054459 and Li Shu Liang ID # 048801 utilizing the Flux Cored Arc Welding (FCAW) Process in the 2F (Horizontal Fillet) Position with gantry mounted welding apparatus and a 1.4mm diameter electrode, filler metal brand Supercored 71H semi automatic to weld fillet between 6-WT(W21x57) rib stiffener to side panel SP173-001 weld joints 007/008, 011/012 and 015/016 using ZPMC Weld Procedure Specification (WPS) WPS-B-T-2123-3. QA Inspector Lizardo randomly observed ZPMC CWI Wu Ming Cai monitoring weld parameters.

Tack welding/fit-up of 6-WT(W21x57) rib stiffener to side panel SP390-001-001~012, SP387-001-001 ~ 012, and

SP386-001-001~012 using 4.0mm diameter TL-508 electrode this QA observed. Cutting of 22mm thick plate for open rib stiffener SP388 and SP389 also noted.

Bay 4: Tower Diaphragm
This QA Inspector randomly observed three ZPMC welder Li Meng Quan ID #054460, Shi Yan Hao ID #053605 and Li Shi Qiang welder 053609 utilizing the FCAW Process in the 3G (Vertical Groove) Position with a 1.4mm diameter electrode, filler metal brand E71T-1, class Supercored 71H, semi automatic with ZPMC WPS WPS-B-T-2233-B-U3-F, to weld fill pass on groove (bent heavy plate) splice butt joint on Tower Diaphragm Flange Sub-Assembly NSD1-SA27 A/B weld joints 2A and 5B and WSD1-SA234 A/B-9A respectively. The QA Inspector randomly observed ZPMC CWI Zhao Chen Sun monitoring weld parameters.

This QA observed two tack welds on fillet weld connection between tower diaphragm plate to diaphragm flange SSD1-SA27 A/B-8 have been removed due crack noted on the first tack and apparently also a crack tack weld on the second weld. Although this QA has not observed the removal of the second tack weld, gap between the flange and the plate was measured 12.0mm due to grinding/chasing of linear indication into the plate base metal. See photo below.

Fillet welding on tower diaphragm plate to diaphragm flange ESD1-SA287-1 was seen complete. This QA randomly observed this fillet weld has an average leg size of 18mm and throat of 14mm.

Bending of heavy plates P1082(S)- 4/8 (K) and P1256(E)- 4/30(A) for diaphragm flanges using oxy-acetylene with thermal heat input of less than 650 degree C with the aid of welded jig and following procedure HSR(T)-130 and HSR1(T)-2047 respectively this QA noted.

Bay 7: OBG - Floor Beam Sub Assembly
QA Inspector J. Lizardo randomly observed ZPMC qualified welder Liu Long Xian ID # 044786 groove welding fill pass on (flange to web plate) tee joint. Mr. Liu was observed welding in the 2G (horizontal) position utilizing a flux corded arc welding (FCAW) process with a 1.4mm diameter electrode, filler metal brand E71T-1, class Supercored 71H, semi automatic at floor beam FB015-013-045. QA Inspector Lizardo observed the ZPMC QC CWI Inspector Hu Wei Qing verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS).

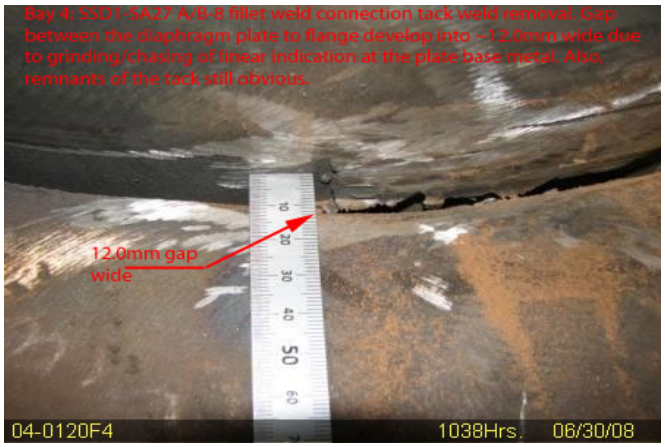
FCAW fillet welding (2F) was observed on stiffener to web plate on floor beam sub-assembly FB015-010 weld joints 013, 014, 022 and 021. ZPMC welder working on this was identified as Hong Shuili ID# 044815. ZPMC CWI Hu Wei Qing was noted monitoring the parameters. Pre-assembly of floor beams FB003-051 and FB003-055 to skewed (diagonal brace) connection plate was also noted. This QA observed ZPMC/NDE perform percentage MT on stiffener and flange to web plate of floor beam FB012-010.

Bay 8: Tower Diaphragm
This QA Inspector randomly observed ZPMC welder Jiang Yong Sheng ID number 045240 utilizing the FCAW Process in the 3G (Vertical Groove) Position with a 1.4mm diameter electrode, filler metal brand E71T-1, class Supercored 71H, semi automatic with ZPMC WPS WPS-B-T-2233-B-U3-F, to weld fill pass on groove (bent heavy plate) splice butt joint on Tower Diaphragm Flange Sub-Assembly ESD1-SA309 -3A. The QA Inspector randomly observed ZPMC CWI Lvliqing monitoring weld parameters. The QA Inspector also randomly

monitored weld parameters and recorded them as follows: 212 amps, 26.1 volts with travel speed of 114mm/minute. Weld parameters appeared to comply with contract requirements.

The QA Inspector randomly observed ZPMC welder Xu Pei Pei ID Number 050323, utilizing the SAW Process in the 1G (Flat Groove) Position with ZPMC WPS WPS-B-T-2221-B-L2c-S-1, to weld the fill pass on plate splice butt joint of floor beam (unequal thickness 30:12mm) FB002-007-026. The QA Inspector randomly observed ZPMC CWI Lvliqing, monitoring weld parameters. The QA Inspector also randomly monitored weld parameters and recorded them as follows: 504 amps, 30.5 volts with a travel speed of 423 mm per minute. Weld parameters appeared to comply with contract requirements.

FCAW (1G) CJP welding fill pass on plate splice butt joint of floor beam FB013-015 weld joints 002 and 020 and FCAW (1G) PJP welding on flange to web plate corner joint of longitudinal shear plate LD001-005-012 this QA observed.



Summary of Conversations:

No significant conversation ocurred today.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

Inspected By:	Lizardo,Joselito	Quality Assurance Inspector
Reviewed By:	Cochran,Jim	QA Reviewer